

Incidence of *Clostridium botulinum* in Crabmeat from the Blue Crab

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The incidence of *Clostridium botulinum* in fresh crabmeat of blue crab was six out of 986 samples; in pasteurized crabmeat one sample out of 1,000 contained the organism.

A considerable quantity of crabmeat is produced for marketing as either a fresh or pasteurized product in plants located along the bays and estuaries of the Atlantic Coast from Maryland south to Florida and along the Gulf Coast. The principal species marketed in this area is the blue crab (*Callinectes sapidus* Rathbun). Fresh crabmeat is the meat of cooked crabs which has been picked by hand, packed in containers, and then held under refrigeration, giving it a shelf life of 1 to 2 weeks. Pasteurized crabmeat is similarly prepared but is packed in hermetically sealed cans and sufficiently heat treated to destroy the majority of the spoilage organisms likely to be present (1, 3, 5), thereby increasing the shelf life to about 6 months when kept under refrigeration. The presence of *Clostridium botulinum* in marine environments, such as those inhabited by the blue crab (2, 6, 7), and the demonstration of these organisms in blue crabs at harvest (6, 8) made the adequacy of pasteurization a matter of considerable concern. Because of this, the incidence of *C. botulinum* in fresh and pasteurized crabmeat was studied.

Factory samples in 1-lb (ca. 454-g) cans of fresh and pasteurized crabmeat were collected, packed in dry ice, and shipped to the Food and Drug Administration laboratories. All of the fresh and two-thirds of the pasteurized samples were sent to the Washington, D. C. laboratory for analysis; the remainder was sent to Atlanta, Ga. Cultures of crabmeat from each can were made in Trypticase-peptone-glucose-yeast extract-trypsin broth (4). In the Washington laboratory, a gram-milliliter ratio of 1:2 (40 g of fresh crabmeat per 80 ml of broth and 150 ml of pasteurized crabmeat per 300 ml of broth) was used; in Atlanta a 1:5 ratio (20 g of pasteurized crabmeat per 100 ml of broth) was used. After 5 days at 26 C, the supernatant fluids of all cul-

tures were tested for toxicity in mice. Cultures producing symptoms of botulism in mice were typed by mouse protection tests; no attempt was made to isolate or identify organisms other than *C. botulinum*.

Out of 986 samples of fresh crabmeat tested, six were found to contain *C. botulinum*; four were type E and two were proteolytic type B. Of 1,000 samples of pasteurized crabmeat, one contained a proteolytic strain of *C. botulinum* type F. The samples containing *C. botulinum* in fresh crabmeat were produced by two of the 40 processors studied in this survey and in pasteurized crabmeat by one processor out of the 38 studied. The type F strain isolated from pasteurized crabmeat was found to be too heat resistant for pasteurization to destroy its spores.

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